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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/561,866

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EXAMINER

MAKI, STEVEN D

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/561,866	<b>Applicant(s)</b> GALIMBERTI ET AL.	
	<b>Examiner</b> Steven D. Maki	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 44-89 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 44-89 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>122105.063006</u> .   | 6) <input type="checkbox"/> Other: ____.                          |

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1) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2) **Claims 44-78 and 81-89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson (US 6,858,665) in view of Europe 187 (EP 341187) and Amaddeo et al (US 6,516,847).**

Larson discloses a cured TIRE having a TREAD. The rubber composition for the TIRE TREAD comprises:

100 parts of at least one **diene based elastomer**,  
1-20 parts **inorganic material (e.g. intercalated and exfoliated montmorillonite clay in the form of organophilic platelets having a thickness of about 1-20 nm)** and

20-99 parts **reinforcing filler comprising carbon black and/or silica.**

Larson teaches that the composition has significantly increased modulus G' and therefore increased stiffness without significant sacrifice in tan delta values. Larson also teaches that the 100 percent and 150 percent modulus values are appreciably increased. See Examples. Larson is silent as to the tread having a cap base construction.

As to claims 44 and 77, it would have been obvious to one of ordinary skill in the art to provide Larson's tire with a cap base construction wherein Larson's rubber composition, which after vulcanization (crosslinking) has significantly increased modulus

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G' and appreciably increased 100 percent and 150 percent modulus, is used for the tread base (radially inner layer) since (1) it is well known / conventional in the tire tread art as evidenced by Europe 187 that a tire should have a cap base construction so that the cap can be formulated for traction and tread wear whereas the base is formulated for good rolling resistance and (2) Amaddeo et al suggests providing a tire with a cap base construction wherein the cap (radially outer layer 12) has a modulus of elasticity E' at 70°C of 4-8 MPa and a tan delta at 70°C greater than 0.15 and the base (radially inner layer 11) has a modulus of elasticity E' at 70°C of 5-14 MPa and a tan delta at 70°C of less than 0.12 to obtain the best compromise between rolling resistance, handling and comfort; it being noted that Amaddeo et al teaches that the modulus E' of the tread base is greater than the modulus E' of the cap.

With respect to the claimed tire construction (claims 44 and 77), it would have been obvious to one of ordinary skill in the art to provide Larson's tire with a carcass comprising at least one ply, a belt comprising at least one belt strip, sidewalls and bead wires wherein each bead wire is enclosed in a respective bead since Amaddeo et al teaches that it is conventional to provide a pneumatic tire with tire components including carcass plies 3, belt layers 7, sidewalls, bead wires 4, beads 5 (col. 9 lines 21-43, 65-67, col. 10 lines 1-22, Figure 1). Furthermore, it would have been obvious to one of ordinary skill in the art to assemble the tire components and heat and vulcanize the tire in a mold since (1) Amaddeo et al teaches assembling the tire components and vulcanizing the tire and (2) it is taken as well known / conventional in the tire art to heat

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and vulcanize a tire assembly comprising tread, belt, carcass, sidewalls and beads in a cavity of a mold wherein the tread pattern is formed in the mold.

As to claims 45 and 78, Larson teaches a thickness of 1-20 nm for the inorganic material (montmorillonite clay). See col. 5 lines 12-18.

As to claims 46 and 47, Amaddeo et al teaches providing the tread base (inner layer 11) with a modulus  $E'$  at 70°C of 5-14 MPa.

As to claims 48 and 49, it would have been obvious to provide the base tread with the claimed thickness since Amaddeo et al teaches providing the inner layer with a thickness of 10-70% of the overall tread thickness.

As to claims 50, 51 and 81, Larson teaches using 1-20 parts of the inorganic material (montmorillonite clay). See col. 3 lines 60-63.

As to claims 52-55 and 82, Larson teaches using montmorillonite clay. See for example col. 3 lines 20-42, col. 5 lines 5-39 and col. 6 lines 9-33.

As to claims 56 and 57, Larson teaches using quaternary ammonium salt (col. 4 lines 1-62).

As to claims 58-63 and 83-84, it would have been obvious to one of ordinary skill in the art to use elastomer as claimed in view of (1) Larson's disclosure to use elastomer as described at col. 6 lines 42-67 for the tread and (2) Amaddeo et al's disclosure to use elastomer as described at col. 3 lines 65-67, col. 4 lines 1-67 and col. 5 lines 1-13) for the radially inner layer of the tread and (3) with respect to claims 62 and 63, it is taken as well known / conventional per se in the tire tread art to use EPDM in

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addition to a diene based elastomer in a rubber composition for a tire tread. It is noted that natural rubber has a Tg below 20 degrees C.

As to claims 64-74 and 85-89, it would have been obvious to provide the tread base with carbon black, silane coupling agent and silica as set forth in claims 64-74 and 85-89 in view of (1) Larson's disclosure at col. 7 lines 1-46 and (2) Amaddeo et al's disclosure at col. 5 lines 13-23 and col. 6 lines 54-67, col. 7 lines 1-21 and (3) with respect to claims 72 and 73, it is taken as well known / conventional per se in the tire tread art that a cap base tread having a silica reinforced cap tread and carbon black reinforced tread base may have a minor amount of silica in addition to the carbon black in the tread base.

As to claims 75 and 76, Amaddeo et al teaches that the tread cap (outer layer 12) has a modulus E' at 70°C of 4-8 MPa.

**3) Claims 79 and 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson (US 6,858,665) in view of Europe 187 (EP 341187) and Amaddeo et al (US 6,516,847) as applied above and further in view of Koyama et al (US 2002/0007893) and Okada (US 6,039,826)**

As to claims 79 and 80, it would have been obvious to one of ordinary skill in the art to form the tread base (radially inner layer) using strip winding since Koyama et al (paragraph 59) and Okada (Figure 6b), both directed to a cap base tread, suggest winding a ribbon to form the tread base (paragraph 59).

#### Remarks

4) The remaining references are of interest.

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- 5) No claim is allowed.
- 6) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven D. Maki/  
Primary Examiner, Art Unit 1791

Steven D. Maki  
June 20, 2009